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**40th WEDC International Conference, Loughborough, UK, 2017****LOCAL ACTION WITH INTERNATIONAL COOPERATION TO IMPROVE AND SUSTAIN WATER, SANITATION AND HYGIENE SERVICES****Community health volunteers' capacity for hygiene behaviour change: evidence from urban Kenya**

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*Community health volunteers (CHVs) play an important role in health service delivery and are increasingly involved in water, sanitation and hygiene (WASH) behaviour change promotion. However, the realities of CHVs work, engagement with the health sector, and daily challenges remain undocumented. This mixed-methods study explored CHVs capacity to deliver an infant hygiene intervention in an urban informal settlement in Kenya. Findings suggest that CHVs are overburdened, receive inconsistent training, and forced to compromise their commitments in order to sustain their own livelihood. Sustained efforts in appreciating the work of CHVs, sustained supplies for CHVs, operational training in communication behaviour change methods and notable efforts in breaking the vicious circle of poverty in informal settlements would go a long way in promoting healthy seeking behaviours.*

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**Introduction**

There is increasing evidence that the effective engagement of Community Health Volunteers (CHVs) can improve access to primary health care (Kawakatsu et al. 2012; Medhanyie, Spigt, Kifle, et al. 2012; Nxumalo et al. 2013; Rosenthal et al. 2010) and improve health outcomes (Haines et al. 2007; Rosenthal et al. 2010) especially where health services are not readily accessible. CHVs, and their many variants, bridge the gap between communities and primary health care in Low Middle Income Countries (LMIC) where scarcity of human resources limits direct community engagement. CHVs are members of the communities which they serve, which enables them to conveniently conduct visits outside the traditional working hours to assist members of their own communities (Cosgrove et al. 2014). Due to their potential reach and proximity to high-need populations, CHVs are increasingly tasked with delivering a variety of health behaviour change interventions, such as hygiene interventions (Hulland et al. 2015). However, few studies have assessed the capacity and performance of CHVs in delivering hygiene behaviour change interventions, particularly in an urban context.

In Kenya, CHVs are members of the community, nominated from within, who are tasked with improving the community's health and wellbeing and to facilitate the referrals of individuals to primary health care services (MoH 2016). CHVs work under the supervision of a Community Health Extension Worker (CHEW). CHVs are responsible for visiting all households in a specified catchment area once per month to collect basic health information and identify health problems that require engagement from or with the health sector (Hulland et al. 2015).

Numerous factors can influence the performance and success of CHVs, both individually and at a programmatic level. CHVs work in complex, interpersonal environments (Sharma et al. 2014). In general, performance of CHVs has been notably higher in small nongovernmental projects as opposed to national programmes (WHO 1989). Studies in Uganda, Ghana, and Ethiopia have identified a lack of transportation, insufficient commodities, and lack of formal referral mechanisms as factors that contribute to poor CHV performance and motivation (Brunie et al. 2014; Dil et al. 2012). Even though CHVs are vital in bridging the gap between the community and the health system and with task shifting being promoted, CHVs seem to be overburdened with responsibilities especially in cases where they are engaged as volunteers and are not recognized as part of the health system.

This paper reviews the current practices, motivations, and realities of CHVs' work in an informal settlement within the context of the development of a hygiene intervention targeting infant feeding.

## **Methods**

### **Study site**

Obunga, with an estimated population of 2000 households in 2009, is an informal settlement in Kisumu – Kenya's (Othun, L & Chavene, J. 2012). Informal settlements are residential areas situated in geographically and environmental hazardous locations that lack basic services, such as sanitation, water supply and waste management. Residents have limited security of land tenure and housing often fails to comply with current planning and building regulations (Alder 1995). Houses in Obunga are built with little ventilation, broken walls and drainage upfront. Only 2% of households have on-plot water supply, 13% of residents have a sanitation facility on-site and existing structures are of poor quality and inadequately distributed (Karanja 2010). Sewer lines in neighbouring communities burst frequently, spewing waste on the roads running into Obunga. There is no government health facility in Obunga and the nearest health facility is the Jaramogi Oginga Odinga Teaching and Referral Hospital, approximately 4 km away. Poor living conditions contribute to frequent disease outbreaks in the area while lack of proper nutrition and sanitation results in high infant morbidity (Okurut & Charles 2014).

### **Study design**

We used a mixed-methods observational study design including structured observations of CHVs during their routine visits, a pre-coded questionnaire, and in-depth interviews and focus group discussions (FGDs) with CHVs. All 16 CHVs that work in Obunga (11 female, 5 male) participated in this study.

### **Data collection staff and training**

Enumerators were recruited and trained for one week on data collection and consenting procedures. Prior to data collection, all tools and procedures were piloted in a different informal settlement in Kisumu. Data collection included structured observations of daily community rounds with all 16 CHVs and structured surveys with all CHVs in Obunga. Following the observations, CHVs also participated in in-depth interviews. Two focus group discussions with eight and seven CHVs respectively were also conducted.

### **Data analysis**

For quantitative data, descriptive statistics were calculated with Stata Version 14. For qualitative data, we followed the procedures of Thematic Content Analysis. An initial review of the data based on the research objectives identified specific thematic areas for further analysis and coding. The themes were used as the categories for analysis. This was done through the process of coding in six phases to establish meaningful patterns which resulted to the final report.

### **Ethical approval**

Written consent from all CHVs was recorded prior to data collection. No data were collected inside community member's homes or during discussions where sensitive health information was shared or discussed. The study was approved by the Ethical Review Committees of both the Great Lakes University of Kisumu (Ref. No.GREC/010/248/2016) and the London School of Hygiene and Tropical Medicine (Ethics Ref: 11928).

## **Results**

### **Household engagement**

To ensure that observation time does not affect the start time, CHVs were observed in their natural work environment and the observers shadowed the CHVs following their normal routine schedules. A majority (45%) of CHVs in Obunga began general contact with the target population at mid-morning (08:30 – 11.30), typically after completing their own household chores while a few (3%) began contact with the target population early morning. Observation periods lasted from 18 to 54 minutes. During observations, CHVs completed an average of 9 household visits as part of their routine CHV duties, the duration of a household visit ranged from less than 1 to 46 minutes (Median: 3.0). We noted various forms of engagement with the community in addition to these formal household visits, including: informal interactions in the community, multiple household visits – where the CHV interacted with multiple households simultaneously and personal

activities (personal activities are activities that do not relate to CHV work). Structured observation data is presented in Table 1.

	Mean	Median	Range
Duration of individual household visits (min)	5.8	3.0	0 – 46
Duration for personal activities (min)	9.33	7.0	0 – 27
Duration of multiple household visit (min)	10.29	6.0	1 – 51
Duration of informal visits (min)	7.69	9.0	0 – 27

Table 2 presents results from the CHV survey. The CHVs reported working for a median of 3 days (IQR of 3 - 5) per week and each day they work for 2.4 hours per day. The median number of households visited per day was 6 (IQR of 4 - 7). This translated to approximately 18 households per week and 72 households per month. Median households per CHV catchment area was 100 (IQR of 100 – 110). Assuming median hours worked and median households visited per week, it would require over 5 weeks to complete the cycle of household visits are expected to complete in one month. The median reported contact time per household was 26.5 minutes (IQR of 18 – 35 minutes), far longer than observed contact time.

	Median	Inter-quartile range (IQR)
Households visited per day	5.5	4 - 7
Length of visit (min)	26.5	18 - 35
Days worked per week	3	3 - 5
Stipend per month (Ksh)	1600	0 - 2000
Catchment households	100	100-110

### **Organizational engagement and training**

Even though CHVs primarily report to the Ministry of Health (MoH) Community Health Extension Worker (CHEW), there are other organizations that assign different responsibilities to CHVs. Of the 16 CHVs interviewed, 11 were involved in activities commissioned by other NGOs or civil groups. CHVs partnered with a maximum of 5 organizations and a minimum of 1 organization. On average CHVs partnered with 3 organizations. Out of the 16 CHVs, 11 reported to receive a stipend mostly from organizations that assigned them responsibilities in addition to the CHV responsibilities. The highest reported monthly stipend was Ksh 8,000 (USD 89) while the median earnings per CHV is Ksh 1600 (USD 18) per month. CHVs did not match organizations to the stipend they receive. From the FGDs, CHVs who receive a stipend were known by the organization and have some previous links to the organizations that pay the stipend. Findings indicate that CHVs are likely to give priority and be loyal to organizations and groups that are likely to give them some monetary reward. The majority of CHVs were involved in Income Generating Activities (IGAs) with some running multiple IGAs as an important contributor to their livelihood. Since CHVs work is not paid by the government, IGA opportunities for CHVs were likely to be prioritized over CHV related activities.

Table 3 presents results on CHV reported training. Training was not standard. CHVs reported to be trained in different topic areas. CHVs who reported insufficiency in training highlighting knowledge gaps in nutrition, hygiene, child health, first aid, and skills in delivery. Other areas of training that CHVs had received include hand washing, counselling, first aid and WASH. Fewer CHVs were trained in skilled delivery, malaria, hygiene and Urban Led Total Sanitation (ULTS). Each CHV reported different topic areas of training, different lengths and formats of training. In general, CHVs received training in a specific content area when they were assigned new responsibilities by organizations outside the formal Government of

Kenya (GoK) system. There was no uniformity in approaches, content and the length of training because CHVs were trained by different groups.

Type of training	Topics
Topical training	Health care skills (malaria treatment n (5); drug addiction n(2); WASH n(4); Community strategy n(5); Community counselling n(2); family planning n(2) hygiene n(1); treatment literacy n(1); Behaviour change n(1); HIV AIDS & TB n(3)
Job training	Nutrition assessment n(5); CHV work n(2); skilled delivery n(1); community mobilization n(1)
Skills training	First Aid n(2)

### **Barriers and facilitators to effective engagement**

Barriers encountered by CHVs are summarized as individual, organization and environmental. Individual barriers include missing households due to people being away at work or migrating out of the community and limited time for CHVs to engage with the target population. The limited time was in part, shaped by the organizational environment in which CHVs operate. Lack of allowances – or payment for time – meant that CHVs were forced to engage in a number of IGAs to ensure their own economic survival.

Additional organizational barriers included insufficient training and lack of support from partners. CHVs receive constant support from the CHEW and occasional support from partners. Support given by the CHEW include household engagement support like identifying complex cases, listening to challenges encountered by CHVs and health care support like organizing for free medical camps and supporting CHVs to refer households to the health facility. In the FGD, a CHV reported that lack of support during key activities like community action days was demotivating for them. Organizations also infrequently provided CHVs with supplies and materials that would enable their work. This included clothing or badges that would identify the CHV to community members, limiting acceptance in some circumstances. Additionally, organizations did not sufficiently provide supplies such as gloves, gum boots, and first aid kits.

The lack of supplies provided by institutions was compounded by the environmental barriers CHVs encounter, specifically the environmental risks CHVs must confront in the area including open defecation. In addition to the physical environment, the social environment limited CHV effectiveness, including: resistance to change, lack of acceptance with some households expecting more tangible support from CHVs due to high poverty level, sexual harassment and vulnerability of poor households.

### **Discussion**

The draft MoH Policy report outlines more than 16 responsibilities for CHVs (MoH 2016). These include but are not limited to:

- promoting care seeking behaviours through adopting hygienic practices that could highly prevent preventable diseases
- visiting homes to determine the health situation, leading household members to take action for improvement and maintaining household registers
- recognizing danger signs among households and referring, organizing, mobilizing and leading village health activities.

CHVs are expected to handle numerous tasks, even those they have not been trained for, which may be disappointing to communities who lack basic treatment services (WHO 1989) and for the CHV who is likely to become overwhelmed. The CHV is expected to be responsible for a minimum of 100 households and to visit each household at least once per month. CHVs, however, visited only 5 households in a day and were not likely to meet this requirement. There is already a large disconnect between CHV reported contact time with households (median 26 minutes) and the length of time CHVs were observed to spend with households (median 5 minutes). Alternative strategies that CHVs use to increase their reach include meeting with multiple families at once, and asking fellow CHVs to attend to their households while they are involved in personal activities. Limited contact time with target populations has large implications for the utility of engaging with CHVs for sustained behavior change interventions.

Some CHVs also commercialized CHV work by engaging in CHV activities with multiple organizations that are likely to earn them income. A systematic review on intervention design factors that influenced performance of CHVs observed that high workload and lack of resources and logistics were barriers to CHV performance (Kok et al. 2015). There are gaps on how practical health care programmes that partly depended on CHVs are (Takasugi & Lee 2012). Moreover CHVs were able to perform when they were not overloaded with tasks and responsibilities (Haines et al. 2007; Rahman et al. 2010). Effort to engage CHVs in WASH behaviour change must recognize the existing network of responsibilities that have shifted onto these volunteer workers.

Initial and on-going training are vital components to ensuring that CHVs have the capacity and skills required to do their work (USAID 2009; Han et al. 2007). Training was not standardized and refresher training for CHVs was not always available. Training was topical, rather than skills based. Even though refresher training is important in improving the skills and knowledge of CHVs (Msisuka et al. 2011), refresher trainings were rarely offered. Providing consistent training to CHVs and ensuring that these trainings address critical skill – in addition to thematic – gaps is necessary for successful utilization of CHVs for WASH behavior change.

Individual, organizational and environmental level barriers impeded CHV to effectively carry out their work in the community. Financial and non-financial incentives have been shown to influence the behaviour and attitude of CHVs in a positive way (Bhattacharyya, & Winch, 2001) while lack of supplies decrease the confidence of CHVs to serve the target population especially in environments marred with high levels of poverty. Integrating CHVs into the WASH programs must recognize the real economic circumstances that CHVs operate in.

## Conclusions

CHVs remain an asset in bridging the interface between the community where most preventable health issues are found and the health system. They may also support the promotion of WASH services and behaviours. Comfortable working conditions, reasonable working hours and ensuring that CHVs are not burdened with responsibilities could increase their productivity. Some level of compensation could be a motivator for CHVs who do not have adequate economic incentives. The driver behind many years of CHVs work is to bring about change (Ochieng et al. 2012) and improved population health depends on changing behaviour (Michie et al. 2011). Training and support is vital for those involved in changing other people's health related behaviours. The role of CHVs in informal settlements is caught in a web of work-related and personal barriers. To result in meaningful change, there is need to break this web by addressing factors that are likely to limit CHV effectiveness.

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